

## **I. Amendments to the Claims**

22. (Presently Amended) A  $V_H$  **polypeptide** and  $V_L$  polypeptide **optionally covalently linked to one another** having in combination with one another a catalytic activity isolated by the method comprising the steps of:

(a) synthesizing a  $V_H$  and a  $V_L$ -coding gene library containing a plurality of different  $V_H$  and  $V_L$ -coding DNA sequences by a method comprising the steps of:

(i) preparing a first polynucleotide containing composition, wherein at least a portion of the polynucleotides in said composition comprise a plurality of different  $V_H$ -coding sequences;

(ii) preparing a second polynucleotide containing composition, wherein at least a portion of the polynucleotides in said composition comprise a plurality of different  $V_L$ -coding sequences;

(iii) amplifying a plurality of  $V_H$  and  $V_L$ -coding sequences in said respective polynucleotide containing compositions;

(iv) joining in operable combination,  $V_H$  and  $V_L$ -coding sequences from said  $V_H$  and  $V_L$ -coding gene library with expression vectors so as to be able to express a  $V_H$  and  $V_L$ -coding sequence from each vector, whereby a diverse library is formed;

(b) selecting and isolating from said diverse library at least one expression vector capable of producing  $V_H$  **polypeptide** and  $V_L$  polypeptide **optionally covalently linked to one another** having in combination with one another catalytic activity;

(c) transforming a host cell with said expression vector; and

(d) isolating a  $V_H$  **polypeptide** and  $V_L$  polypeptide encoded by said vector from said host cell, **wherein said  $V_H$  polypeptide and  $V_L$  polypeptide are optionally covalently linked to one another.**

23. (Presently Amended) The V<sub>H</sub> polypeptide and V<sub>L</sub> polypeptide of claim 22 wherein said V<sub>H</sub> and V<sub>L</sub> coding sequences from said V<sub>H</sub> and V<sub>L</sub> coding library are joined with separate expression vectors.

24. (Presently Amended) A V<sub>H</sub> polypeptide and V<sub>L</sub> polypeptide optionally covalently linked to one another having in combination with one another a catalytic activity isolated by a method comprising the steps of:

- (a) preparing a first polynucleotide containing composition, wherein a portion of the polynucleotides in said composition comprise a plurality of different V<sub>H</sub>-coding sequences;
- (b) preparing a second polynucleotide containing composition, wherein a portion of the polynucleotides in said composition comprise a plurality of different V<sub>L</sub>-coding sequences;
- (c) amplifying a plurality of V<sub>H</sub> and V<sub>L</sub>-coding sequences from said first and said second polynucleotide containing compositions, respectively, by a method of amplification comprising the step of adding primers capable of hybridizing upstream and downstream from a plurality of said V<sub>H</sub> coding sequences and adding primers capable of hybridizing upstream and downstream from a plurality of said V<sub>L</sub> coding sequences, under conditions permitting hybridization to occur, whereby a plurality of different amplified V<sub>H</sub> and a plurality of different amplified V<sub>L</sub> coding sequences are produced;
- (d) joining in operable combination, said amplified V<sub>H</sub> and V<sub>L</sub>-coding sequences with expression vectors so as to be able to express a V<sub>H</sub> and V<sub>L</sub>-coding sequence from each vector, whereby a diverse library is formed;
- (e) selecting and isolating from said diverse library at least one expression vector capable of producing a V<sub>H</sub> polypeptide and V<sub>L</sub> polypeptide optionally covalently linked to one another which in combination with one another have said catalytic activity,

- (f) transforming a host cell with said expression vector; and
- (g) isolating a V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptide encoded by said vector from said host cell, **wherein said V<sub>H</sub> polypeptide and V<sub>L</sub> polypeptide are optionally covalently linked to one another.**

25. (Presently Amended) The V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptide of claim 24 wherein said amplified V<sub>H</sub> and said amplified V<sub>L</sub> coding sequences are joined with separate expression vectors.

26. (Presently Amended) A V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptide **optionally covalently linked to one another** having in combination with one another a catalytic activity isolated by the method comprising the steps of:

- (a) producing a V<sub>H</sub> and V<sub>L</sub>-coding genetic library, by a method comprising the steps of:
  - (i) adding a first primer, wherein said first primer is capable of hybridizing to a first conserved nucleotide sequence substantially adjacent to a plurality of V<sub>H</sub>-coding regions, and said coding sequences are present in a polynucleotide containing composition that comprises a plurality of different V<sub>H</sub> and V<sub>L</sub> coding sequences;
  - (ii) adding a second primer to said nucleotide containing composition, wherein said second primer is capable of hybridizing to a second conserved nucleotide sequence substantially adjacent to a plurality of different V<sub>H</sub>-coding regions;
  - (iii) adding a third primer, wherein said third primer is capable of hybridizing to a third conserved nucleotide sequence substantially adjacent to a plurality of V<sub>L</sub>-coding regions;
  - (iv) adding a fourth primer to said polynucleotide containing composition, wherein said fourth primer is capable of hybridizing to a fourth conserved nucleotide sequence substantially adjacent to a plurality V<sub>L</sub>-coding regions;

- (v) amplifying said V<sub>H</sub> coding sequences and said V<sub>L</sub> coding sequences;
- (b) joining in operable combination said amplified V<sub>H</sub> and V<sub>L</sub>-coding sequences with expression vectors so as to be able to express V<sub>H</sub> and V<sub>L</sub>-coding sequence from said vectors, whereby a diverse library is formed;
- (c) selecting and isolating from said diverse library expression vector capable of producing V<sub>H</sub> or V<sub>L</sub> polypeptides which in combination have said catalytic activity;
- (d) transforming a host cell with said expression vectors; and
- (e) isolating a V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptide encoded by said vector from said host cell, **wherein said V<sub>H</sub> polypeptide and V<sub>L</sub> polypeptide are optionally covalently linked to one another.**

27. (Presently Amended) The V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptide of claim 26 wherein said amplified V<sub>H</sub> and V<sub>L</sub> coding sequences are joined into separate expression vectors.

28. (Presently Amended) The V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptides of any of claims 22-27 wherein said V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptides comprise an Fab.

29. (Presently Amended) The V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptide ~~s-and~~ of any **one** claims 22-27 wherein said V<sub>H</sub> **polypeptide** and V<sub>L</sub> polypeptides comprise a whole antibody.